Pallen (M. A.)

VAGINO-CERVIPLASTY IN LIEU OF AMPUTATION OF THE CERVIX UTERI, IN CERTAIN FORMS OF INTRA-VAGINAL ELONGATION.

BY

MONTROSE A. PALLEN, A.M., M.D.,

LECTURER ON THE SURGICAL DISEASES OF WOMEN IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF NEW YORK.

(Read by Invitation before the New York Obstetrical Society, October 20th, 1874.)

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Certain abnormities of the female sexual apparatus are explained by teratological facts based upon the study of embryology. An arrest of embryonic development, a fixation of a perfectly normal transitory state, or a failure of the second formative pubertic development, results in a permanent anomaly materially affecting the future generative functions. The converse of this is equally productive of mischief, as an excessive developmental impetus results in a loss of anatomical and physiological correlation, and determines an increase of one or more of the factors of copulation, generation, or parturition. These propositions are demonstrated by the presence of a double uterus and vagina, or a double vagina and single uterus, or the absence of the vagina with a rudimentary uterus and well-developed ovaries, and various other heterodox formations indicative of arrested or excessive embryogenic impetus. The internections of the vagina, bladder, rectum, uterus, oviducts and ovaries indicate certain relations that are not to be transgressed without inducing portentous troubles, as represented by dyspareunia,

dysmenorrhœa, dystocia or sterility. Whether these abnormities of relation and place be the result of arrested embryonic genesis, and therefore congenital, or they result from direct traumatism, or indirect pathogenesis, the gynæcologist's ingenuity, as well as his patience, is sometimes taxed to the utmost. In some of these teratological conditions, as well as in traumatic and pathological states, a restoration of place, and a reëstablishment of order may be accomplished by the intervention of art. An understanding of the development and functions of the vagina, as well as its abnormal implantations, will explain the philosophy of certain surgical procedures I have instituted in the hope of overcoming some so-called uterine displacements and deformities. Ever since the days of Récamier and Lisfranc, an intravaginal elongation of the cervix uteri, either real or apparent, has been summarily disposed of by excision or amputation. Clinical observation has demonstrated the correctness of the treatment in *true* hypertrophic elongation, but such a procedure in the *apparent* form of the lesion is actually a mutilation, and in some forms, complicated with more or less of procedentia, the operation of amputation of the cervix is fraught with immediate dangers from hemorrhage (primary and secondary), peritonitis and septicæmia, and remote troubles in parturition, should the sterility be overcome.

Embryologically considered, the vagina is a mixed organ, intermediate in function and position, and is formed by the hollowing out of a membranous spur, a true cloacal septum, between the bladder and rectum, which takes place about the eighth week after conception, at which period the cavities of the uterus and vagina are continuous. Towards the fifth month the two organs are materially distinct, and if no arrest of development has taken place, or no increased formative action been manifested, the implantation of the vagina upon the cervix, (histological fusion), will be such as to leave the proper pubertic angulation somewhere in the neighborhood of one hundred and fifty-five degrees, and the correlations of place symmetrical. The vagina in the perfect woman is normally fused to the cervix higher upon the posterior than upon the anterior surface, and is likewise reflected upon itself from its posterior wall down upon the cervix, its pelvic superior extremity being convex and in juxtaposition with the peritoneal fold in Douglas's

pouch. Anteriorly, but on a lower plane, it is attached to the cervix behind and the bladder in front, and sends processes or duplicatures in a horizontal direction, without dipping or folding upon itself as in the posterior fornix. In totality, the vagina is an inverted cone, with a greater amount of ballooning posteriorly than anteriorly.

The sustentative functions of the vagina depend upon its surrounding connective tissue, as well as its attachments to the pelvic fascia from and around the bladder (the pubo-vesico uterine ligaments of Hyrtl), and the dissepiments and processes of musculo-serous tissue attached to the sacro-lumbar ligaments. When no increment, either of vascular, muscular, or connective tissue, takes place, the vagino-cervical fusions are mutually sustentative and supporting, and it is only when the correlation of place and order is destroyed by pathogenetic causes, that we are called upon to treat post-pubertic lesions and congenital or teratological abnormities.

The anomalies of the uterus, the oviducts, and the ovaries are quite frequent, and their study is productive of many interesting deductions; but it is to the correction of some of the anomalies of the vagina as productive of dyspareunia, dysmenorrhœa, and sterility that I propose to limit this paper.

The intravaginal portion of the cervix uteri in the average-sized nulliparous woman has a dip of about six lines, and in the child-bearing woman somewhat less, but with a corresponding increase in length in the supravaginal portion, the isthmus and the fundus. The depth from the os externum to the fundus of the nulliparous woman during the intermenstrual period is a fraction over two and a half inches, and something less than three inches in mothers. Any marked increase beyond these measurements is indicative of hypertrophic elongation of the cervix, sub-involution of the entire organ, the presence of a neoplasm, or hyperplastic formations. The persistence of the normal measurements in totality, notwithstanding an excessive elongation of the intravaginal cervix indicates a faulty implantation of the vagina, or a possible condition of incudiform uterus with hypertrophic elongation of the cervix, although no such case has as yet been recorded of which I am cognizant. The deduction then is, that an amputation of an elongated intravaginal cervix, however great it may be, when the measure-

ments do not exceed three inches, is a mutilation and should not be done until other procedures have failed. When the converse implantation of the vagina takes place (the measurements being less than three inches in the longitudinal axis), the so-called infantile neck exists, but why such a misnomer should have been applied I cannot understand, as during infancy the neck is much more developed than is the body. This formation is teratological, and the actual condition is an implantation or fusing of the vagina too low down upon the cervix, giving it an intravaginal dip of hardly more than one or two lines. As the first condition is the anomaly of excessive vaginal dimensions, the latter is the anomaly of defective vaginal dimensions.

For the anomaly of defective vaginal dimension, nothing as yet has been devised to overcome it; possibly a plastic sliding of the vagina upwards, the converse of the operation to be described in lieu of amputation of the cervix, may be successfully performed. It is feasible in performance, but difficult in execution. The amputation of the cervix, as advised and performed by Huguier for hypertrophic elongation is familiar in its details to every gynæcological surgeon, but so enthusiastic was he in its recommendation, that its dangers have in a measure been overlooked.

There are cases recorded where the peritoneal cavity was opened with the écraseur; by Marion Sims, whose case recovered after stitching the wounded surfaces; by Breslau, where the vaginal section was followed by an extrusion of the intestine; by Biefel, where death from peritonitis followed an opening into the bladder; by some Parisian surgeon (reported by Blanquinque) where death ensued from hemorrhage and peritonitis on the same day; by Langenbeck, where the peritoneum was also wounded; by Meadows, who described another, and by Peter, the French translator of Bennet, who mentions still another fatal one. Why such an accident takes place during écrasement, is readily understood when we recollect that, in all cases of hypertrophic elongation, the peritoneum is dragged down with the cervix, sometimes as low as the level of the sacculated bladder—most always in the retro-uterine space, and may even pass out of the vulva, as in a specimen in St. Thomas's Museum, and figured by Barnes. But to these cases the procedure of vagino-cerviplasty is not applicable; they are merely mentioned

as illustrative of the dangers of amputation of the cervix by linear écrasement, to which may be added the farther hazards of hemorrhage when the conoid operation of Huguier is made.

Vagino-cerviplasty is applicable to those cases *where the longitudinal diameter of the utero-cervical cavity does not exceed three inches, but where the intravaginal portion of the cervix is so long as to interfere with either locomotion, sitting, coition, menstruation or conception;* and for the removal of which Marion Sims devised his double-flap operation, and other surgeons the galvano-cautery loop.

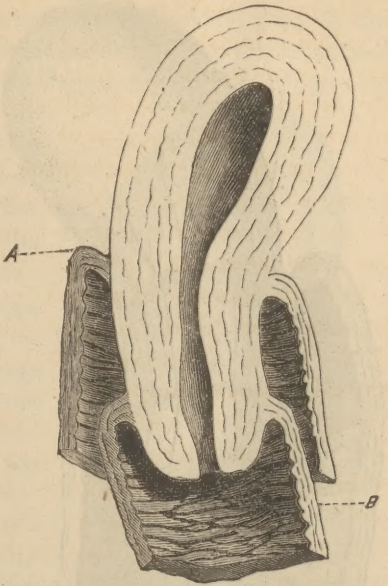

Fig. 1.—A. Abnormal implantation of the vagina producing infravaginal elongation of the cervix. B. Normal vaginal implantation. This figure is given as illustrative of the mechanism of the lesion under consideration by comparison of the two conditions.

One of the most remarkable instances of excessive vaginal elongation is reported by Martini of Biberach, where the posterior fornix was attached to the fundus of the uterus, but ordinarily the fusion takes place about on a level with the isthmus. The retro-uterine pouch does not descend below the attachment, so that with care it need not be invaded; in fact the dissection should not be so high posteriorly as anteriorly, but to equalize the strain upon the sutures all around, the mucous membrane must be stripped lower down from the posterior than from the anterior cervix. In performing the operation, etherization being completed, the patient is placed in the semi-prone position, a Sims speculum used, and the cervix steadied with the double-spring tenaculum, which gives entire control of the organ in case it is necessary to call upon an assistant to hold it.

Vagino-cerviplasty consists in a circumcision of the mucous membrane by means of a bistoury, with its cutting edge at right angles to the shank, and then stripping it from the cervix, at a point about three lines from its distal extremity

anteriorly, a little more than two lines posteriorly, and carrying the dissection upwards for about an inch anteriorly, more than an inch posteriorly. This leaves nearly the whole of the vaginal portion denuded of its mucous covering. The hemorrhage is but slight, as no vessels of any magnitude are normally encountered. The next step of the operation should not be commenced until all bleeding has ceased, as it is of the utmost importance to see each section of the submucous connective tissue. The first incision is made with scissors curved on the flat, cutting with the concavity towards the cervical tissue; when a separation is made, a tenaculum is hooked into the mucous membrane, and the dissection is carried half way around the cervix, when the tenaculum is handed to an assistant, and another inserted into the undenuded mucous membrane where the stripping was first commenced, and a similar separation is made on the opposite side until the first is met.

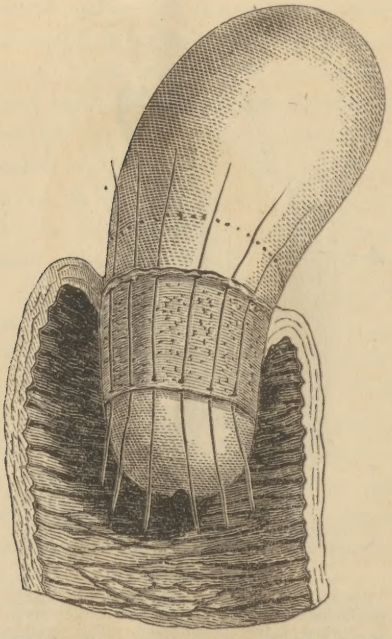

Fig. 2.—Showing the line of separation above the stripped cervical mucous membrane, and the position of the silver sutures before the sliding is perfected.

The depth of these incisions of separation varies from three to eight lines according to the greater or less length of the cervix. Should any vessel be divided, and we might meet with an abnormally superficial circular artery, it must be torsioned or ligated at either orifice for reasons well understood. I have never yet had to do this, as the bleeding has been readily controlled by sponging with cold alum water. The silver wire is then passed from above downwards, from without inwards on the upper flap, and from within outwards on the lower flap. The wire of course is drawn through by means of double

looped non-knotted silk thread in small fish-hook shaped trocart-pointed needles. In my first operation I used very short straight needles, half an inch in length, but they were not so easily passed as the fish-hook needles, which were used in the other two. When the wires are all adjusted, three in front and four behind, the parts are drawn together, and the apparently elongated cervix is shortened by being covered by the vagina, slid downwards, or rather the cervical portion is drawn upwards into the upper loosened sheath. In the three cases upon which I have operated, I was fortunate enough to witness immediate union, and removed the sutures in the first case on the sixteenth day, and in the other two respectively on the thirteenth and twelfth day after the operation. The treatment immediately supervening after the operative procedure consists in those cares usually enjoined after any surgery upon the genital organs, such as the horizontal posture, evacuation of the bladder every six hours (or the permanent catheter) for the first four or five days, quiescence of the bowels, and the exhibition of opium, if necessary. Pelvic cellulitis, non-union of the wounds, inflammatory developments, in fact any of the sequelæ of pelvic surgery, might supervene after vagino-cerviplasty, as well as after any other operation about those parts, but they are infinitely less probable than if amputation of the cervix had been made.

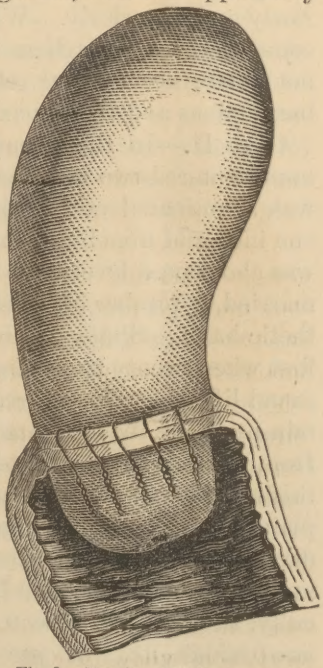

Fig. 3.—Showing the adjustment of the flaps, and the appearance of the neck after vagino-cerviplasty.

Case I.—It is now nearly four years since the first operation was devised (December, 1870), where the patient, a woman twenty-six years of age, seven years married, suffered so intensely during coition that it had not been attempted for about three years prior to my operating upon her—she was, of course, sterile and somewhat dysmenorrhœic. The intravaginal cervix

measured an inch and eleven lines in the posterior, and an inch and nine lines in the anterior cul-de-sac, and when the rectum was loaded with scybalæ, the os tinca protruded from the vulva when she sat down. On the eighteenth of last August, forty-four months after the vagino-cerviplasty, the intravaginal portion of the cervix was less than ten lines in length, both posteriorly and anteriorly. While the sterility has not been overcome, the dysmenorrhœa is trifling, and the dyspareunia does not exist; her marital relations, which had been unhappy, are harmonious and the cervix is quite two inches from the vulva.

CASE II.—In the second case, operated on in May, 1872, the sound entered two inches and nine lines, the intravaginal cervix was acuminated and projected from the posterior cul-de-sac one inch and nine lines, showing that the vaginal implantation was about on a level with the os internum. This lady was unmarried, a teacher of music, and of marked hysterico-hyperæsthetic habit. She was thirty-one years of age, and menstruated first when twenty-two years old. From the inception of her menstrual life she suffered greatly from dysmenorrhœa, and in certain positions, the elongated cervix protruded about half an inch from the vulva and irritated the clitoris. The consequences of this mechanical attrition were most deplorable, and readily explained her hysteria and hyperæsthesia. Leucorrhœa was abundant and the peripheral mucous membrane about the os externum constantly eroded. Not knowing the nature of her difficulty, she had recourse to the usual preparations of valerian, assafœtida, etc., as prescribed under such circumstances. When I first saw her, I desired a physical examination, particularly on account of the intense dysmenorrhœa and persistent leucorrhœa, but my request was refused for several months. Finally the symptoms were so aggravating that she herself demanded the physical exploration which revealed the conditions above described. The vagino-cerviplasty was made on the second of May, 1872, and consisted of stripping the cervix for an inch and one line anteriorly, and an inch and three lines posteriorly. Seven silver sutures were passed and the patient kept in the horizontal position for nine days. On the thirteenth day they were removed and menstruation supervened three days subsequently. She still had dysmenorrhœa, but seemingly not so aggravated as before. During the succeeding intermen-

strual period the vagina was syringed twice or thrice daily with warm salt water, and the granular erosions on the cervix touched with sulphate of copper crystals or carbolized glycerine. Her hyperæsthesia was less, and the hysteria materially improved. The next menstrual period was accompanied with less pain, and after its cessation the warm douches and topical applications continued at longer intervals. In the course of half a year, the intravaginal cervix was seemingly normal, with the exception of a very small os externum, and her menstruations comparatively comfortable. The hysteria and hyperæsthesia ceased altogether. This patient was under observation until September 1st, 1874, and had had no recurrence of her former troubles, and was pursuing her avocations with uninterrupted satisfaction and zeal.

Case III.—The third and last operation of vagino-cerviplasty was made December 29th, 1873. This lady was twenty-four years old, married, and of course sterile. Marital efforts had ceased for about one year, as the dyspareunia was so great that it was followed by extreme prostration and sometimes by syncope. Leucorrhœa was profuse and constant, and there were the usual erosions upon the cervix, which was slender and acuminated, with an intravaginal dip upon its anterior surface of an inch and seven lines, and upon its posterior surface of an inch and eleven lines. The sound penetrated the uterine cavity to the depth of two inches and ten lines. Here was another case of implantation on a level with the isthmus. When this patient suddenly sat down, the cervix impinged upon the bladder, frequently giving rise to pain, always to vesical and sometimes to rectal tenesmus, as the inclination of the entire uterus was towards retroversion, but not actually retroverted save under the downward pressure of the superincumbent viscera, when in the sitting or squatting posture. Chronic catarrh of the bladder was likewise a complication. She had been advised to submit to amputation of the cervix and came to me for that purpose from the State of Tennessee. I proposed vagino-cerviplasty instead, which was made, and the sutures removed on the twelfth day. Unlike the other two cases her menstruation was usually attended with so little pain, that it could hardly be called dysmenorrhœa. The subsequent vaginal hot salt water douches were given, and the topical ap-

plications made to the cervical erosions. The leucorrhœa ceased but the cystitis persisted. The cervix, however, had been shortened in its dip to six lines anteriorly, and eight lines posteriorly. As she could not remain in the city (St. Louis) for a longer period of time, she returned to her home and passed from under observation after the second menstrual period subsequent to the operation. On July 17th, 1874, I received a letter from her medical attendant at home, who stated that her dyspareunia was quite relieved, that the cervix was fully two inches from the vulva, and that the cystitis had almost disappeared in consequence of the removal of the irritation caused by the impinging cervix.

These three cases are certainly very encouraging, and indicate that amputation of the cervix, except in malignant disease or hypertrophic elongation, may give place to a plastic operation that saves the woman from an unnecessary mutilation.